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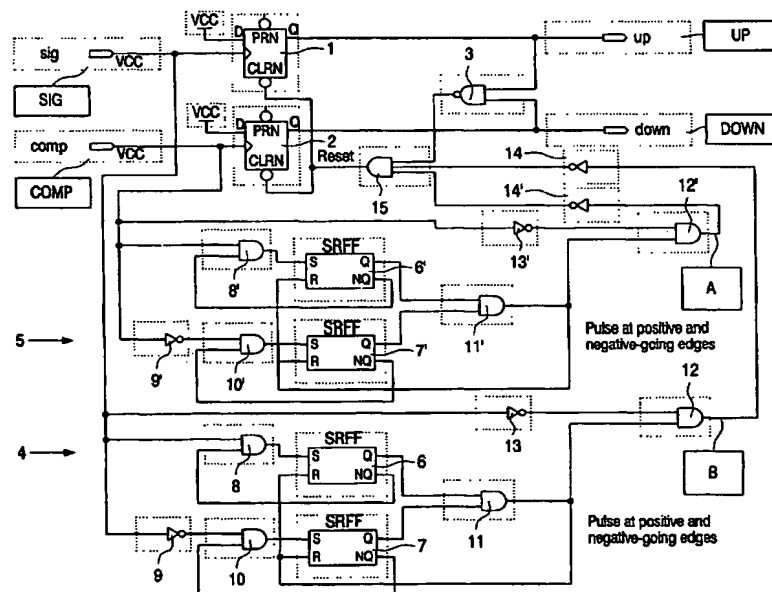
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(54) Title: PHASE COMPARATOR



(57) Abstract: A phase comparator, particularly for a PLL circuit, compares the phase angle of input signals by evaluating the edges of the input signals and generates a regulating signal. To make the regulating signal insensitive to disruptions or interference on the input signals, an additional circuit (4, 5) is provided that evaluates further, different edges of the input signals (SIG, COMP) and generates therefrom additional reset signals for the regulating signals (UP, DOWN).



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03L7/089 H03D13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 323 692 B1 (TSINKER VADIM) 27 November 2001 (2001-11-27) column 13, line 21 - line 51 column 14, line 65 - column 19, line 34 column 21, line 21 - column 23, line 61 figures 4,8A-8E,9A-9E,10,14A-14F,15A-15F	1-5,7
X	EP 1 158 680 A (YAZAKI CORP) 28 November 2001 (2001-11-28) column 15, line 12 - column 21, line 42; figures 11-17	1,2,5,7
A	WO 02 19527 A (ERICSSON TELEFON AB L M ;FREDRIKSSON JESPER (SE)) 7 March 2002 (2002-03-07) *Whole document*	1-7

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6323692	B1	27-11-2001	NONE
EP 1158680	A	28-11-2001	EP 1158680 A1 28-11-2001 JP 2002246902 A 30-08-2002 US 2001043086 A1 22-11-2001
WO 0219527	A	07-03-2002	AU 6646301 A 13-03-2002 WO 0219527 A1 07-03-2002 US 2003155947 A1 21-08-2003